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ABSTRACT

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3 A three terminal edge illuminated epilayer waveguide
4 phototransistor including a subcollector layer formed of an
5 epitaxially grown quaternary semiconductor material, such as
6 heavily doped InGaAsP. A collector region of undoped InGaAs is
7 epitaxially grown on the subcollector layer. A base region,
8 including a heavily doped InGaAs base layer and a very thin
9 undoped InGaAs spacer layer, is epitaxially grown on the
10 collector layer. An emitter region, including a doped InGaAsP
11 layer, a doped InP layer, and a heavily doped InGaAs emitter
12 contact layer, is epitaxially grown on the base layer. The
13 various layers and regions are formed so as to define an edge-
14 illuminated facet for receiving incident light.